

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Canceled)

2. (Currently amended) [[The method of claim 1,]] An image processing method comprising:

a first step of detecting an iris region of an eye of a person from an original image;

a second step of performing a predetermined image conversion to the iris region detected in the first step; and

a third step of outputting the original image the iris region of which the predetermined image conversion has been performed to;

wherein the predetermined image conversion is image conversion in which the iris region is divided into a plurality of portions and respective images of divided portions are re-arranged in a predetermined order or at random between an image of the iris region and another iris image, the another iris image having been processed so that at least one of size, color and shape thereof is the same as the image of the iris region.

3. (Currently amended) [[The method of claim 1,]] An image processing method comprising:

a first step of detecting an iris region of an eye of a person from an original image;

a second step of performing a predetermined image conversion to the iris region detected in the first step; and

a third step of outputting the original image the iris region of which the predetermined image conversion has been performed to;

wherein the predetermined image conversion is image conversion in which an image of the iris region is replaced with a predetermined iris pattern image, the predetermined iris pattern image having been processed so that at least one of size, color and shape thereof is the same as the image of the iris region.

4. (Currently amended) [[The method of claim 1,]] An image processing method comprising:

a first step of detecting an iris region of an eye of a person from an original image;

a second step of performing a predetermined image conversion to the iris region detected in the first step; and

a third step of outputting the original image the iris region of which the predetermined image conversion has been performed to;

wherein the predetermined image conversion is image conversion in which a predetermined iris pattern image is superimposed on an image of the iris region, the predetermined iris pattern image having been processed so that at least one of size, color and shape thereof is the same as the image of the iris region.

5. The method of [[claim 1]] claim 2, wherein the second step includes the steps of:

decomposing an image of the iris region into pieces according to a spatial frequency,

performing predetermined conversion to the piece with a predetermined band of the decomposed image, and

re-synthesizing the pieces with respective bands.

6. (Canceled)

7. (Currently amended) The method of [[claim 1]] claim 2, wherein in the second step, when the detected iris region has a smaller size than a predetermined size, the image conversion is not performed.

8. (Currently amended) The method of [[claim 1]] claim 2, wherein the second step includes the steps of:

performing reflection component separation to the detected iris region to obtain a diffusion reflection image and a specular reflection image;

performing the image conversion to the diffusion reflection image; and

adding the specular reflection image to the image which has been image-converted.

9-12. (Canceled)

13. (New) The method of claim 3, wherein the second step includes the steps of:
decomposing an image of the iris region into pieces according to a spatial frequency,

performing predetermined conversion to the piece with a predetermined band of the decomposed image, and

re-synthesizing the pieces with respective bands.

14. (New) The method of claim 3, wherein in the second step, when the detected iris region has a smaller size than a predetermined size, the image conversion is not performed.

15. (New) The method of claim 3, wherein the second step includes the steps of:

performing reflection component separation to the detected iris region to obtain a diffusion reflection image and a specular reflection image;

performing the image conversion to the diffusion reflection image; and

adding the specular reflection image to the image which has been image-converted.

16. (New) The method of claim 4, wherein the second step includes the steps of:
decomposing an image of the iris region into pieces according to a spatial frequency,

performing predetermined conversion to the piece with a predetermined band of the decomposed image, and

re-synthesizing the pieces with respective bands.

17. (New) The method of claim 4, wherein in the second step, when the detected iris region has a smaller size than a predetermined size, the image conversion is not performed.

18. (New) The method of claim 4, wherein the second step includes the steps of:
performing reflection component separation to the detected iris region to obtain a diffusion reflection image and a specular reflection image;

performing the image conversion to the diffusion reflection image; and

adding the specular reflection image to the image which has been image-converted.

19. (New) An image processing apparatus comprising:

an iris detection section for detecting an iris region of an eye of a person from an original image; and

an image conversion section for performing a predetermined image conversion to the iris region detected by the iris detection section,

wherein the original image the iris region of which the predetermined image conversion has been performed to is outputted,

wherein the predetermined image conversion by the image conversion section is image conversion in which the iris region is divided into a plurality of portions and respective images of divided portions are re-arranged in a predetermined order or at random between an image of the iris region and another iris image, the another iris image having been processed so that at least one of size, color and shape thereof is the same as the image of the iris region.

20. (New) An image processing apparatus comprising:

an iris detection section for detecting an iris region of an eye of a person from an original image; and

an image conversion section for performing a predetermined image conversion to the iris region detected by the iris detection section,

wherein the original image the iris region of which the predetermined image conversion has been performed to is outputted,

wherein the predetermined image conversion by the image conversion section is image conversion in which an image of the iris region is replaced with a predetermined iris pattern image, the predetermined iris pattern image having been processed so that at least one of size, color and shape thereof is the same as the image of the iris region.

21. (New) An image processing apparatus comprising:

an iris detection section for detecting an iris region of an eye of a person from an original image; and

an image conversion section for performing a predetermined image conversion to the iris region detected by the iris detection section,

wherein the original image the iris region of which the predetermined image conversion has been performed to is outputted,

wherein the predetermined image conversion by the image conversion section is image conversion in which a predetermined iris pattern image is superimposed on an image of the iris region, the predetermined iris pattern image having been processed so that at least one of size, color and shape thereof is the same as the image of the iris region.

22. (New) An image capturing apparatus comprising:
an image capturing section; and
the image processing apparatus of claim 19 for receiving as the original image an image captured by the image capturing section.

23. (New) An image output apparatus comprising:
the image processing apparatus of claim 19; and
an output section for visualizing an image which has been image-converted and output from the image processing apparatus and then outputting the image.

24. (New) An image capturing apparatus comprising:
an image capturing section; and
the image processing apparatus of claim 20 for receiving as the original image an image captured by the image capturing section.

25. (New) An image output apparatus comprising:
the image processing apparatus of claim 20; and
an output section for visualizing an image which has been image-converted and output from the image processing apparatus and then outputting the image.

26. (New) An image capturing apparatus comprising:
an image capturing section; and
the image processing apparatus of claim 21 for receiving as the original image an image captured by the image capturing section.

27. (New) An image output apparatus comprising:
the image processing apparatus of claim 21; and
an output section for visualizing an image which has been image-converted and output from the image processing apparatus and then outputting the image.